UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/810,638	03/29/2004	Jeffrey Shane Reiter	50103-554	9583

49745 7590 08/09/2007

SEAGATE TECHNOLOGY LLC
c/o MCDERMOTT WILL & EMERY LLP
600 13TH STREET, NW
WASHINGTON, DC 20005-3096

EXAMINER	
MCDONALD, RODNEY GLENN	

ART UNIT	PAPER NUMBER
1753	

MAIL DATE	DELIVERY MODE
08/09/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/810,638	REITER, JEFFREY SHANE	
	Examiner	Art Unit	
	Rodney G. McDonald	1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 July 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on July 11, 2007 has been entered.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-8, 11-14 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Ando et al. (U.S. Pat. 6,458,253).

Regarding claim 1, Ando et al. teach an apparatus adapted for treating or processing at least one substrate/workpiece in a plasma. (Column 8 lines 54-64) In Fig. 7 a chamber (10) defines an interior space. (Column 12 lines 27-31) There are means (82) for generating a plasma in the interior space of the chamber. (Column 12 lines 60-65; Column 13 lines 41-43) Mounting means (71) adapted for position at least on substrate/workpiece in the interior space of the chamber for receiving treatment in the plasma. (Column 12 lines 34-36) A gas supply means (30) for injecting gas(es) into

the interior space of the chamber. (Column 12 lines 56-58) An inlet portion extending exteriorly of the chamber. An outlet portion extending into the chamber and including at least one outlet orifice for injecting gas(es) into the interior space. (Fig. 7; Column 13 lines 51-56) There are means (81) for applying a bias potential to the gas supply means for suppressing plasma formation at the at least one outlet orifice, wherein the means for applying the bias potential (81) is electrically isolated from the means (82) for generating a plasma. (Fig. 7; Column 12 lines 59-60; Column 13 lines 51-57; Column 16 lines 60-67)

Regarding claim 2, Ando et al. show in Fig. 1A an insulating member 40 for electrically isolating the gas supply means from the chamber and the means for generating the plasma (i.e. target/cathode). (Column 5 lines 13-15; Column 5 lines 31-34; Column 6 lines 45-49)

Regarding claim 3, Ando et al. show the outlet portion of the gas supply means extending through an electrically insulated opening in a wall of the chamber. (Column 5 lines 13-15; Column 5 lines 31-34; Column 6 lines 45-49)

Regarding claim 4, the means for applying the bias potential comprises means for applying a DC bias potential. (Column 12 lines 59)

Regarding claim 5, the bias potential can be from +50 V to –50V. (Column 23 lines 9-10)

Regarding claim 6, the interior of the space is kept at a reduced pressure. (Column 12 lines 28-31)

Regarding claim 7, the apparatus is adapted to perform sputter deposition. (Column 12 lines 23-24)

Regarding claim 8, the apparatus is adapted to perform sputter deposition and the means for generating the plasma includes at least one cathode/target assembly. (Column 12 lines 23-24; Column 12 lines 45-65)

Regarding claim 11, Ando et al. teach a method for treating or processing at least one substrate/workpiece in a plasma. (Column 8 lines 54-64) Fig. 7 provides a chamber (10) defining an interior space. (Column 12 lines 27-31) Providing means for generating a plasma in the interior space of the chamber. (Column 12 lines 60-65; Column 13 lines 41-43) Providing mounting means (71) adapted for positioning at least on substrate/workpiece in the interior space of the chamber for receiving treatment in the plasma. (Column 12 lines 34-36) Providing a gas supply means (30) for injecting gas(es) into the interior space of the chamber. (Column 12 lines 56-58) Providing an inlet portion extending exteriorly of the chamber. Providing an outlet portion extending into the chamber and including at least one outlet orifice for injecting gas(es) into the interior space. (Fig. 7; Column 13 lines 51-56) Providing means (81) for applying a bias potential to the gas supply means for suppressing plasma formation at the at least one outlet orifice, wherein the means for applying the bias potential (81) is electrically isolated from the means (82) for generating a plasma. (Fig. 7; Column 12 lines 59-60; Column 13 lines 51-57; Column 16 lines 60-67) Treating at least one workpiece. (Column 8 lines 54-64)

Regarding claim 12, the interior of the space is kept at a reduced pressure. (Column 12 lines 28-31)

Regarding claim 13, the apparatus is adapted to perform sputter deposition. (Column 12 lines 23-24)

Regarding claim 14, the apparatus is adapted to perform sputter deposition and the means for generating the plasma includes at least one cathode/target assembly. (Column 12 lines 23-24; Column 12 lines 45-65)

Regarding claim 18, the gas(es) are injected into the interior of the space of the chamber by means of an electrically isolated gas supply means having an inlet portion extending exteriorly of the chamber and an outlet portion extending into the chamber via an electrically insulated opening in a wall of the chamber. (Fig. 1A; Column 5 lines 13-15; Column 5 lines 31-34; Column 6 lines 45-49)

Regarding claim 19, the applied bias is a DC bias potential. (Column 12 line 59)

Regarding claim 20, the bias potential can be from +50 V to –50V. (Column 23 lines 9-10)

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 9, 10, 15, 16 are rejected under 35 U.S.C. 103(a) as being unpatentable Ando et al. (U.S. Pat. 6,458,253) in view of Zejda (U.S. Pat. 5,228,968).

Ando et al. is discussed above and all is as applies above. (See Ando et al. discussed above)

The differences between Ando et al. and the present claims is that the apparatus comprising a spaced-apart pair of cathode/target assemblies and the mounting means adapted to position at least one substrate/workpiece in the space between the pair of cathode/target assemblies is not discussed (Claim 9), the gas supply means being adapted for injecting the gas(es) into the space between the pair of the cathode/target assemblies is not discussed (Claim 10), the step of providing a pair of spaced apart cathode/target assemblies, mounting at least one substrate/workpiece in the space between the pair of spaced-apart cathode/target assemblies, and injecting the gas(es) into the space between the pair of spaced-apart cathode/target assemblies is not discussed (Claim 15), and mounting/positioning at least one disk-shaped substrate/workpiece for a magnetic or magneto-optical (MO) recording medium is not discussed (Claim 16).

Regarding claim 9, Zejda teach in Fig. 4 a pair of spaced apart cathode/target assemblies and presumably mounting means adapted to position at least one substrate/workpiece in the space between the pair of cathode/target assemblies. (See Fig. 4; Column 3 lines 32-44)

Regarding claim 10, Zejda teach in Fig. 4 locating gas supply means in the space between the cathode/target assemblies for inletting gas between the cathode/target assemblies. (See Fig. 4; Column 3 lines 32-44)

Regarding claim 15, Zejda teach the step of providing a pair of spaced apart cathode/target assemblies, mounting at least one substrate/workpiece in the space between the pair of spaced-apart cathode/target assemblies, and injecting the gas(es) into the space between the pair of spaced-apart cathode/target assemblies. (See Fig. 4; Column 3 lines 32-44)

Regarding 16, Zejda teach coating magnetic disks. (Column 1 lines 57-60)

The motivation for utilizing the features of Zejda is that it allows for coating evenly both sides of the substrate. (Column 1 lines 43-45)

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified Ando et al. by utilizing the features of Zejda because it allows for coating evenly both sides of the substrate.

Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ando et al. in view of Zejda as applied to claims 9, 10, 15, 16 above, and further in view of Suzuki et al. (U.S. Pat. 6,627,253).

The difference not yet discussed is reactive sputtering of a ferromagnetic target material in an oxygen-containing plasma to deposit an oxygen-containing ferromagnetic layer on each surface of the at least one substrate/workpiece. (Claim 17)

Regarding claim 17, Suzuki et al. teach sputtering a ferromagnetic target material in an oxygen-containing plasma to deposit an oxygen containing ferromagnetic layer on each surface of the at least one substrate/workpiece. (Column 8 lines 58-67; Column 9 lines 1-18)

The motivation for utilizing the features of Suzuki et al. is that it allows for reducing the media noise of the magnetic layer. (Column 7 lines 48-49) Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the features of Suzuki et al. because it allows for reducing the media noise of the magnetic layer.

REMARKS:

In response to the argument that the prior art does not teach the means for applying a bias potential is electrically isolated from the means for generating a plasma, it is argued that Ando et al. show the means for applying the bias potential to the gas supply means to be electrically isolated from the means for generating the plasma (i.e. cathode/target arrangement connect to the power source). Specifically there are tow power sources that are separate for applying the biases and therefore they are electrically isolated from one another. (See Ando et al. discussed above)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney G. McDonald whose telephone number is 571-272-1340. The examiner can normally be reached on M-TH with every Friday off..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Rodney G. McDonald
Primary Examiner
Art Unit 1753

RM
August 1, 2007